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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SOOHOO, TONY GLEN

ART UNIT	PAPER NUMBER
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1723

8

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/787,201

Applicant(s)

INNINGS ET AL.

Examiner

Tony G Soohoo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification fails to originally convey there is a 1<sup>st</sup> and 2<sup>nd</sup> part to the homogenization process as is now claimed.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-4 point out "whereby the liquid is subjected to a second part of the homogenization". However the claims fails to point out a 1<sup>st</sup> part of homogenization thereby rendering the claim unclear in where and when the 1<sup>st</sup> part of the homogenization step occurs in the claim such that a 2<sup>nd</sup> part of the homogenization step

can be clearly determined and provide antecedent basis that there are two parts of the homogenization process manipulation.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Knollenberg 1496858 (and also cited and REJECTED by WIPO as an "X" reference in the Search Report document with regards to claim 1.)

The document discloses a method for homogenization of liquids, at which the liquid is caused to pass through a metal block provided with an inlet channel a, channels c and d, which first run radially and then axially, and narrow radial channels (gaps) e and f. These channels discharge in a restricted space g, in which the liquid from channel e meets the liquid from channel f at high speed. The channel g is connected to a second set of channels c-f, which is connected to an outlet channel b.

Applicant has failed to point out that the gaps are annular and concentric to one another in claims 1 and 8 thus absent any manipulative step of the provision of such a particular structure, the holes, providing a void in the structure, maybe considered as a gap in the method step. Additionally, whereby the set of holes are about the same

center of the central element, the hole gaps maybe considered as being concentric about the center axis.

3. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Loo 2882025.

The document discloses a method for homogenization of liquids, at which the liquid is caused to pass through a metal block valve cone 27, 28, 30, provided with an inlet channel 13, channels 17 and 31, 30, which first run radially and then axially, and narrow radial channels (gaps) between 38, and 33. These channels discharge in a restricted space between 32 and 38, in which the liquid from channel 31 meets the liquid from channel 30 at "high speed". Since the claims do not distinguish over the prior art whereby the claims distinctly call for a particular flow speed the meeting of material into the restricted space between the two concentric homogenization gaps between 32 and 38. The channel 36 which is connected to an outlet channel 15, 16.

Loo on column 4, lines 27-35 further teaches two parts of the homogenization process of the fluid. The 1<sup>st</sup> step is the flow across the sharp ridge gap in the formation of and the formation of bubbles and vapor, the second homogenization process if the rushing of liquid at a high speed from the gap after a bubble collapses and smashes fat globules. Loo on column 3, lines 22-33. "The milk flowing through port 20 is force to flow past ridge 32 and the milk in ports 31 is forced to flow either past ridge 33 or past ridge 34. The ridges or sharp edges 32, 33, 24 cause an abrupt reduction in the pressure of the milk which in turn causes numerous microscopic vapor bubbles to

rapidly form and collapse. Since in milk these cavitation bubbles or vapor bubbles are most likely to develop at the fat-serum interface, when a bubble collapses and the surrounding liquid rushes in to fill the void at a velocity approaching the speed of sound, the fat globules are smashed to a degree sufficient to effect complete homogenization of the milk."

With regards to claim 2 and 6, note that the gaps are created between the two narrow surfaces between the annular ridges of the interface of 28, and 33 of the seat 26 and the valve cone 27, 28.

With regards to claim 3 and 7, note the central through flow channel 30, and concentric flow channel 31 on the valve seat 26.

With regards to claim 4 and 8, note the liquid departs from the gaps about 38, 33 via a channel 36 provided in the valve cone 27.

#### ***Response to Arguments***

4. Applicant's arguments filed 10/16/02 have been fully considered but they are not persuasive.

Applicant argues that the Knollenberg reference does not show the use of "gaps" to produce liquid passing out at high speed. Applicant has failed to point out any positive manipulative step in the provision of the "gap" such as a requirement that the gaps are annular and concentric to one another in claims 1 and 8. Absent any manipulative step to limiting the particular type of structure to provide the "gaps" within the method claim, the holes are deemed to structurally provide a providing a void in the structure, and thus maybe considered as a "gap" in the wall to produce a fluid flow in the

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method step. Additionally, whereby the set of holes are about the same center of the central element, the hole gaps maybe considered as being concentric about the center axis. Applicants further argument to the regulation of and control of particular flow direction and pressure values are immaterial to the claimed method whereby the claims fail distinctly claim particular values for pressures or steps of the direction or timing of the regulation of the flow to distinguish language with regards to claimed method as shown by Knollenberg.

Applicant argues With regards to the Loo reference that, on page 5, "As such, the [liquid] from the different inlets cannot be met at a high velocity, as the *inlets* are too far away from each other. (emphasis added)" It is noted that the inlets are not at issue 31 and 30. It is rather that the gaps formed between the surface of 39 and the concentric rings 33, 38 which form the increase in speed to cause the homogenization across the gap and the "meeting" of fluids in a further mixing prior to out flow to the outlet 36. Thus, inlet distance is immaterial to any distinction of the manipulative step as taught by Loo between that of the claimed method.

It is acknowledged by the examiner that applicant does agree that Loo does show concentric groove surfaces whereby liquid is passed across the sharp edge gaps into an area between the grooves, as shown by the remarks on page 5, "The milk is then forced to pass a sharp edge and is then collected in concentric grooves before it leaves the valve."

However Applicant argues that because Loo points out that a pressure drop will occur when the liquid crosses the gap to bubble, and applicant alleges that the distance is too far away from between inlet(s?) to cause high speed. Applicant argues on page 5 of the remarks, " the object of the invention [of LOO] is to cause an abrupt reduction in the pressure and to cause the development of microscopic bubble in the milk that will rapidly form and collect."

The examiner notes on page 5 of the specification, lines 15-20 state that bubbles are formed by applicant's invention. "When the liquid from the two homogenization gaps 12 and 13 departs from the gaps 12 and 13, they will meet at high speed.... One the two flow have converged together, the speed reduces and the pressure one again increases. The liquid stops boiling and the steam bubbles in the liquid implode. The entire process takes place during a few fractions of a second and in the violent process where the high speed and converging of the two flow into one another give rise to turbulence and cavitation, the fat globules which are found in the liquid are shared or split into smaller particles or globules.

Assuming, in argument, that applicant meant that the distance between the concentric gaps are too large to provide an inlet feed of liquid so it meets at high speed, in response, it is noted that the claims do not distinguish or define or require the rate of velocity of speeds of the liquid flowing from the gaps prior to meeting one another. Thus the scope of "high speed" is open to interpretation such that the flow velocity provided by the operation of Loo may be deemed as a "high speed" when the fluid from the outer ring and inner ring meet each other thereby causing further mixing prior to the



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exhaust of the mixture from the outlet 36. Also, in the Loo reference, column 3, line 28-33 points out that surrounding liquid rushes in at the speed of sound. The speed of sound may be considered as a high speed.

It is noted that applicant's passing of liquid across the gaps would also provide a pressure drop since all fluids behave in accordance to Bernoulli's equation and the continuity equation for fluids. Thus it can be said that a mere presence of a drop in pressure in Loo's device and operation across the gap does not manipulatively distinguish applicant's operation and manipulation caused by the gap. In fact applicant's disclosure points out that there is a very large pressure drop across applicant's own device which is in the order of zero Mpa, see the specification page 5, line 12.

### ***Conclusion***

5. Applicant's amendment with the presentation of new claims 5-8 has necessitated a new additional rejection/remarks with regards to the additional claims presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

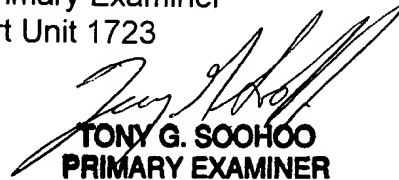
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G Soohoo whose telephone number is (703) 308-2882. The examiner can normally be reached on 7:00 AM - 5:00 PM, Tues. - Fri.. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tony G Soohoo  
Primary Examiner  
Art Unit 1723



**TONY G. SOOHOO**  
**PRIMARY EXAMINER**

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